DAMES & MOORE A PROFESSIONAL LIMITED PARTNERSHIP
12 COMMERCE DRIVE, CRANFORD, NEW JERSEY 07016-1101 (201) 272-8300

February 17, 1989

Ms. Janet Feldstein
U.S. Environmental Protection Agency
26 Federal Plaza
New York, New York 10278

Re: Laboratory Data Discrepancies
SCP Carlstadt RI/FS

Dear Janet:

We have completed our review and evaluation of the laboratory analytical raw data versus the data summary tables used in the RI Report. The major discrepancy identified was for sample RB-5-1, where the data summary table did not match the raw data. The raw data quantified detections for 13 volatile organic compounds (VOCs), while the data summary reported data for only five VOCs. Since the data excluded from the summary table had substantially lower values than those included, and since four of the five values in the summary table were reported much higher than the raw data values, we believe that the summary table provided a conservative overestimation of the total VOCs in the sample. The attached tables and figure from the RI Report have been marked up to include the raw data from sample RB-5-1 instead of the summary table data, and this substantiates our observation. Therefore, we conclude that the interpretations provided in the RI Report are valid even if the raw data are considered.

Furthermore, we have discussed this matter with our risk assessment consultant, Terra Inc. Terra has informed us that their selection of indicator chemicals would not be altered if the raw data were used, particularly since ground water drives the selection of indicator chemicals.

Minor discrepancies identified include the reporting of values below the method detection limit (MDL) in the raw data, while the corresponding summary tables simply list BMDL. Since our data interpretations are based on detections above the MDL, this has no impact on the RI Report.

A complete discussion of the discrepancies is contained in the attached ETC letter. Please call if you have any questions or require additional information.

Very truly yours,

DAMES & MOORE

Gerard M. Coscia, P.E.
Project Manager

GMC/jhm

cc: Mr. David Thompson (Allied)
Mr. Gil Weil

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Environmental Testing and Certification Corp.
284 Raritan Center Parkway
P.O. Box 7808
Edison, New Jersey 08818-7808
201-225-5600

ETC

February 17, 1989

Gerard Coscia
Dames and Moore
12 Commerce Drive
Cranford, N.J. 07016

Re: SCP - Carlstadt Site

Dear Gerry:

Pursuant to your request on February 7, 1989, ETC, with the help of your office, has compared the quantitative analytical results reported in two hundred and fifty six (256) reports to the quantitative analytical results reported on the Data Management Summary reports. The following anomalies were discovered:

Volatile Organic Analysis for Sample BC8074:

The discrepancy listed below exists between the volatile analysis values stated in the report and those values reported on the Data Management Summary listed in the Remediation Investigation Report.

Parameter	Report Table Quantitative Results	Method Detection Limit	Data Management Summary Results
Benzene	364 ug/kg	270 ug/kg	ND
Chlorobenzene	BMDL	370 ug/kg	ND
Chloroform	17800 ug/kg	98 ug/kg	47300 ug/kg
1,2-Dichloroethane	10200 ug/kg	170 ug/kg	23200 ug/kg
1,1-Dichloroethylene	182 ug/kg	170 ug/kg	ND
Ethylbenzene	987 ug/kg	440 ug/kg	ND
Methylene Chloride	1350 ug/kg	170 ug/kg	ND
Tetrachloroethylene	4890 ug/kg	250 ug/kg	33600 ug/kg
1,2-Trans-dichloroethylene	241 ug/kg	98 ug/kg	ND
1,1,2-Trichloroethane	1810 ug/kg	300 ug/kg	ND
Trichloroethylene	586 ug/kg	120 ug/kg	ND
Trans-1,3-dichloropropylene	BMDL	610 ug/kg	ND
m-Xylene	4030 ug/kg	610 ug/kg	27700 ug/kg
o+p-Xylenes	3370 ug/kg	610 ug/kg	BMDL

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In this case, both sets of values represent compounds found in the sample BC8074. The sample was originally analyzed at a dilution factor of 1:50. Toluene required an additional dilution of 1:2000 in order to be able to accurately quantitate the value. This dilution was performed within hold time, two days later.

In order to expediate this project, one analyst reviewed both analytical runs for this sample. The Table results represent the values determined from the 1:50 dilution for all parameters with the exception of toluene. The toluene value was calculated from 1:2000 dilution. The data was entered into the ETC database and the quantitative results table was created.

A different analyst reviewed the batch which contained the 1:2000 dilution run for sample BC8074. This analyst re-entered the results of this sample's dilution run into the ETC database. The volatile compound results printed on the "Report Table" were overwritten by the second data entry. The database represented the values for sample BC8074 from the 1:2000 dilution analytical run only. The "Report Table" results represent a more accurate portrait of the compound levels detected in this sample aliquot.

Report Qualifiers:

Several inconsistencies in report qualifiers were noted between the "Report Table" results and the Data Management summary reports. ETC was requested by you to provide summary reports in a ND/BMDL (Not Detected/Below Method Detection Limit) format. The reports would automatically report a compound level below the method detection limit as BMDL.

Various methods and protocols require compound levels detected below the method detection limit to be reported differently. The State of New Jersey, for example, requires all analysis performed under a NJDEP Contract to report any values below the detection limit as ND. For this program, when a compound or element is not present at any detectable concentrations it is reported as ND. If a compound or element is present below its published Method Detection Limit, then it is to be reported as BMDL. Please note that compound values detected below the MDL are considered estimated concentrations.

Listed below are the samples and compounds for which this inconsistency occurred:

ETC Sample ID	D&M Sample ID	Parameter	Report Table Quant. Result	MDL	Summary Report Result
BC9328	GW-6S	2,4-Dimethylphenol	1.63 ug/l	2.7 ug/l	BMDL
BC8122	RSS-1-2	Arclor 1254	5500 ug/kg	16000 ug/kg	BMDL
BC8094	RB-4-1	2,4-Dinitrophenol	ND	210 ug/kg	BMDL
BC7180	RMW-35-2	Benzene	2300 ug/kg	6027 ug/kg	BMDL
		Chlorobenzene	4600 ug/kg	8219 ug/kg	BMDL
		Diethyl phthalate	28500 ug/kg	45259 ug/kg	BMDL
		1,2,4-Trichloro-benzene	4930 ug/kg	8597 ug/kg	BMDL
		2-Chloronaphthalene	3010 ug/kg	8597 ug/kg	BMDL
BC7175	RMW-5D-1	Acrolein	ND	6100 ug/kg	BMDL
BC9352	TB-13	MEK	6.71 ug/l	10.0 ug/l	BMDL
		Styrene	1.93 ug/l	10.0 ug/l	BMDL

Metals Analysis:

Six samples have a discrepancy between the elements represented on the "Report Table" and those reported on the Data Management Summary reports. In all cases, as listed below, one element is missing on the "Report Table".

ETC Sample ID	Dames & Moore Sample ID	Element	Quantitative Results
BC9340	GW-5S	Zinc	110 ppb
BC9515	GW-7D	Thallium	ND
BC9527	GW-7D	Thallium	ND
BC9349	GW-2D	Thallium	ND
BC9348	GW-2D	Thallium	ND
BC9350	GW-5D	Thallium	ND

In summary, ETC is very concerned in preserving the integrity of the ETC database. Several corrective action items have been taken in order to address these database concerns.

A database audit system has been employed to monitor all data input into the system. This audit function records all modifications to data entries and stores previous input. Previously, ETC only employed this system on samples which had been invoiced. ETC has recently modified this system to monitor any sample which is linked into the database.

Additionally, ETC is in the process of developing programs which will compare the client's analytical request to the produced report. ETC is exploring the possibility of being able to have ETC clients as well as ETC Quality Assurance personnel obtain access to this data.

These programs will maximize the integrity of the ETC database. The database will mirror the results reported in hard copy. This will minimize the possibility of the database being overwritten or a compound being deleted

from a "Report Table".

The misuse of data qualifiers appears to be a result of inconsistent data entry in the laboratory. ETC is in the process of heightening the analysts' product/project awareness thereby minimizing the misuse of data qualifiers.

It is ETC's goal to provide the best practical analytical services in a timely manner on this and any future projects. If you have any questions, please do not hesitate to contact me at 201/225-6774.

Sincerely,

Leslie Clarke
Project Manager

LC/dab

cc: Michael Prisco
Jack Farrel

TABLE 6

SOIL SAMPLES
OCCURRENCE OF CHEMICALS DETECTED AT THE SCP SITE
BASED ON SAMPLES COLLECTED BY DAMES & MOORE, DECEMBER 1987
(Values are in mg/kg)

CHEMICAL	NO. OF OCCURRENCES	MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
Volatile Compounds (68 samples)					
Benzene	~~13~~ 14	0.009	53.9	~~12.49~~ 11.62	~~21.274~~
Chlorobenzene	14	0.012	336	67.961	112.079
Chloroform	16	0.004	379	~~82.394~~ 80.55	~~126.16~~
1,1-Dichloroethane	8	0.005	179	37.358	62.155
1,2-Dichloroethane	15	0.015	290	~~43.649~~ 42.78	~~79.308~~
1,1-Dichloroethylene	~~1~~ 2	~~80.3~~ 0.182	80.3	~~80.3~~ 40.24	
Ethylbenzene	~~30~~ 31	0.019	652	~~79.466~~ 76.93	~~157.849~~
Methylene chloride	~~42~~ 43	0.009	124	~~12.158~~ 11.91	~~26.215~~
1,1,2,2-Tetrachloroethane	3	0.032	0.7	0.341	0.338
Tetrachloroethylene	46	0.005	4290	~~396.64~~ 396.02	~~802.482~~
Toluene	51	0.009	3380	300.57	649.247
1,2-Trans-dichloroethylene	~~18~~ 19	0.003	512	~~56.151~~ 53.21	~~137.679~~
1,1,1-Trichloroethane	12	0.023	1770	191.722	504.432
1,1,2-Trichloroethane	~~2~~ 3	0.113	15.7	~~7.906~~ 5.87	~~11.021~~
Trichloroethylene	~~42~~ 43	0.029	2060	~~227.76~~ 222.48	~~484.487~~
Vinyl chloride	1	0.028	0.028	0.028	—
Methyl ethyl ketone	27	0.018	795	38.322	154.99
Styrene	1	212	212	212	—
m-Xylene	42	0.012	2000	~~221.81~~ 221.25	~~435.758~~
o + p-Xylenes	~~37~~ 38	0.017	1450	~~167.42~~ 163.10	~~301.467~~
Acid Compound (58 samples)					
2-Chlorphenol	1	0.238	0.238	0.238	—
2,4-Dichlorophenol	1	5.06	5.06	5.06	—
2,4-Dimethylphenol	6	0.146	10.8	3.812	4.651
Phenol	12	0.11	790	76.319	225.452
Base/Neutral Compounds (58 samples)					
Acenaphthene	18	0.072	21.2	2.177	4.875
Acenaphthylene	2	0.546	21	10.773	14.463
Anthracene	19	0.090	86.3	5.467	19.601
Benzidine	1	244	244	244	—
Benzo(a)anthracene	11	0.545	84.2	9.491	24.83
Benzo(a)pyrene	25	0.101	108	6.533	21.259
Benzo(b)fluoranthene	13	0.576	164	17.065	44.422
Benzo(ghi)perylene	13	0.227	73.3	7.57	19.861

TABLE 7

SOIL SAMPLES

VERTICAL DISTRIBUTION OF VOLATILE ORGANIC COMPOUNDS DETECTED AT THE SCP SITE BASED ON 68 SAMPLES COLLECTED BY DAMES & MOORE DECEMBER 1987 (VALUES ARE IN MG/KG)

	VOLATILE ORGANIC COMPOUNDS[2]		
Stratum	Occurrence/Total Samples	Mean	Range
Unsaturated Fill	17/17	1,068 ~~1,092~~	0.024 - 12,167
Saturated Fill	16/17	2,069	0.335 - 9,890
Top of Clay	15/17	153	0.042 - 1,822
Within Clay	17/17	126[1]	0.048 - 439[1]

NOTE:

(1) The mean and range exclude the sample from RMW-7D, which had a total VOC concentration of 4,124 mg/kg. This value was more than 32 times greater than the next highest VOC concentration within the clay, and therefore, substantially distorts the mean value. This value occurred near the top of the clay, and the concentration decreased by an order of magnitude in the next sample down. With this value included, the mean concentration is 361 mg/kg.

(2) For breakdown by compound in each stratum, see Tables 7A through 7D.

TABLE 7A

SOIL SAMPLES
VOLATILE ORGANIC COMPOUNDS IN THE UNSATURATED FILL
(Values are in Mg/Kg)

Compound	Occurrence/ Total Samples	Mean	Range
Benzene	9/17	17.109 ~~22.690~~	0.319 - 53.900
Chlorobenzene	4/17	113.538	0.282 - 336.000
Chloroform	4/17	10.348 ~~17.773~~	0.004 - ~~47.300~~ 17.800
1,1-Dichloroethane	2/17	37.900	11.100 - 64.700
1,2-Dichloroethane	4/17	4.845 ~~8.095~~	0.016 - ~~23.200~~ 10.200
1,1-Dichloroethylene	2/17	0.131 ~~0.080~~	0.080 - ~~0.080~~ 0.182
Ethylbenzene	7/17	168.223 ~~196.896~~	0.038 - 652.000
Methylene chloride	10/17	0.607 ~~0.533~~	0.009 - 2.390
1,1,2,2-Tetrachloroethane	1/17	0.288	0.288 - 0.288
Tetrachloroethylene	12/17	783.199 ~~785.586~~	0.059 - 4290.000
Toluene	8/17	737.859	0.013 - 3380.000
1,2-Trans-dichloroethylene	5/17	0.079 ~~0.037~~	0.004 - ~~0.073~~ 0.241
1,1,1-Trichloroethane	1/17	2.490	2.490 - 2.490
1,1,2-Trichloroethane	2/17	0.962 ~~0.113~~	0.113 - ~~0.113~~ ~~0.118~~ 1.810
Trichloroethylene	12/17	296.426 ~~323.321~~	0.051 - 2060.000
Methyl ethyl ketone	2/17	8.576	0.019 - 8.560
m-Xylene	7/17	499.674 ~~503.055~~	0.148 - 2000.000
o+p Xylenes	9/17	291.224 327.206	0.024 - 1450.000

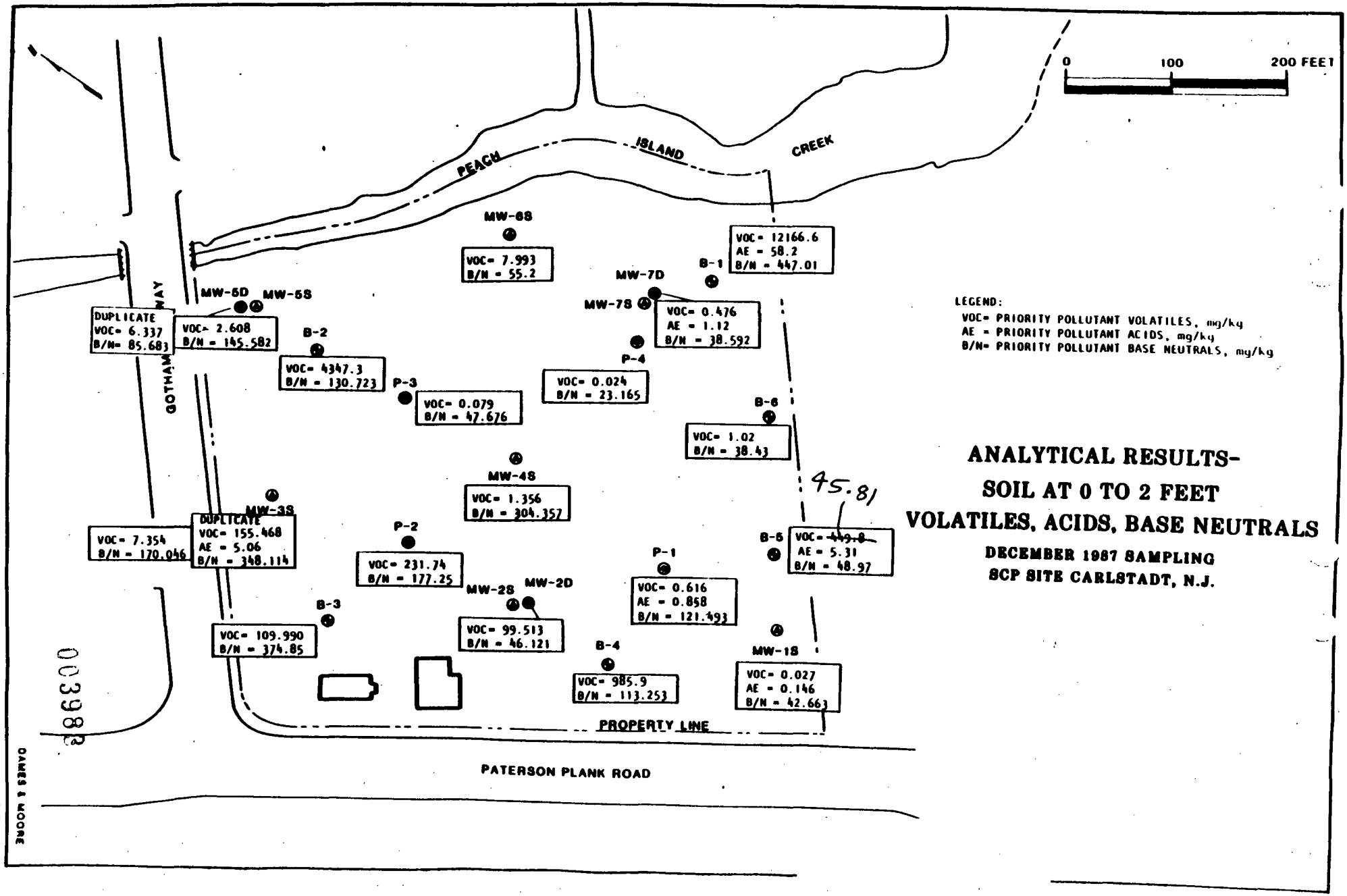

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FIGURE 12